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ABSTRACT

The purposes of this study were (1) to ascertain whether there were significant differences in reading achievement scores within first-grade children who have and who have not had preschool group experiences, and (2) to follow up these first-grade students through the fifth grade to determine if any significant differences were retained, or occurred later, as the children progressed through school. Preschool experience status was indicated by teachers on the Student Information Questionnaire used by the North Carolina Annual Testing Program. Reading scores for first and second grades were obtained from the Prescriptive Reading Inventory, administered in the spring of 1978 and 1979. Reading scores for third through fifth grades were obtained from the California Achievement Tests, administered in the spring of 1980, 1981, and 1982. Comparisons for 386 Durham County Public School students were made using the t-test for uncorrelated samples. While no significant differences were found in the reading scores of preschool and nonpreschool groups in the first grade, significant differences in favor of the preschool group were found at the .05 level in the second grade, at the .01 level in the third grade, and at the .001 level in both the fourth and fifth grades. Directions for further research are suggested. (Author/RH)

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THE RELATIONSHIP BETWEEN PRESCHOOL EXPERIENCES AND READING ACHIEVEMENT: A FIVE YEAR FOLLOWUP STUDY

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by

Charles Waddell Creech

A research project presented to the faculty of the North Carolina Central University in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Education

Durham

1982

Approved by

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Advisor

PS 013272

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ABSTRACT

CHARLES WADDELL CREECH. The Relationship Between Preschool Experiences and Reading Achievement: A Five Year Followup Study (Under the direction of Dr. Naren Tambe)

The focus of this study was to ascertain whether there were significant differences in the first, second, third, fourth, and fifth grade reading achievement scores between students who have had experience in a preschool program and students who have had no experience in a preschool program. Preschool experience status was indicated by teachers on the Student Information Questionnaire used by the North Carolina Annual Testing Program. Reading scores for grades one and two were from the Prescriptive Reading Inventory administered in the spring of 1978 and 1979. Reading scores for grades three, four, and five were from the California Achievement Tests administered in the spring of 1980, 1981, and 1982.

Comparisons on 386 Durham County Public School students were made using the t-test (for uncorrelated samples). While there was no significant difference found in reading between the preschool and non-preschool groups in the first grade, significant differences at the .05 level in the second grade, at the .01 level in the third grade, and at the .001 level in both the fourth and fifth grades in favor of the preschool group were found.

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Finally, I wish to express thanks to my parents - Avon and Linnie Creech (who have always inspired my pursuit of education) and to my son - Terry and my wife - Carmen for their support and patience over the past three years.

Charles Waddell Creech

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CHAPTER I

INTRODUCTION

> In a recent issue of a leading educational journal a delightful cartoon depicts two toddlers pausing from their busy play, amidst blocks, pounding boards, and other preschool toys that are strewn about the floor around them. In the cartoon, one of the youngsters is saying ruefully to the other, "Blocks, beads, pegboards -- they're filling my head with stuff I'll never use."[1]

How important are the preschool years for the development of the child as compared with the remainder of his life span? Does participation in a preschool program have any effect upon a child's later achievement in school? With the ever increasing numbers of mothers of young children in the work force, what is the effect of child care group experiences and nursery school group experiences upon very young children? In today's rapidly changing society with its accompanying changes in the traditional family lifestyle, concerned educators and parents are questioning the effects of these changes upon the development of young children.

Tabulated research from the Department of Health, Education, and Welfare in 1978 found approximately 3 million

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[1]Robert D. Morrow and Hugh J. McBride, Relationship of Preschool Academic Skill Deficits to Subsequent Acquisition of Reading and Mathematics Skills, U. S., Educational Resources Information Center, ERIC Document ED 149 864, 1977.

infants and toddlers as well as approximately 4 million preschoolers enrolled in some type of group day care or preschool program on a full- or part-time basis.[2] If recent trends provide any indication of what to expect in the near future, it is clear that day care and preschool programs will continue to increase in the United States over the next few years. It is therefore quite understandable that the consequences of these types of preschool group experiences are uppermost in the minds of many concerned parents and educators.

In the State of North Carolina, where even enrollment in kindergarten is still not a requirement of the public school program, emphasis in the area of preschool education is a very recent phenomenon. To date, there has been very little research published in North Carolina in the area of kindergarten education or any other preschool educational programs. In fact, a computer ERIC search on the subject failed to turn up a single study from North Carolina. This study is an attempt to ascertain what effect, if any, preschool experiences provided in North Carolina have upon later achievement in school and in a review of the literature search for answers to some of the questions being raised about the consequences of preschool experiences.

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[2]Jay Belsky and Laurence D. Steinberg, "What Does Research Teach Us About Day Care: A Followup Report," Children Today (July-August, 1979), 21.

Purposes

The purposes of this study were as follows: 1) to ascertain whether there were significant differences with respect to reading achievement scores within first grade children who have and who have not had preschool group experiences, and 2) to follow up these first grade children through grade 5 to determine if any significant differences are retained, or occur later, as the children progress through school.

Hypotheses

The hypotheses of the study were as follows:

1. There are no significant differences in the reading achievement scores of first grade students who have had experience in a preschool program and first grade students who have had no experience in a preschool program.

2. There are no significant differences in the reading achievement scores of second grade students who have had experience in a preschool program and second grade students who have had no experience in a preschool program.

3. There are no significant differences in the reading achievement scores of third grade students who have had experience in a preschool program and third grade students who have had no experience in a preschool program.

4. There are no significant differences in the reading achievement scores of fourth grade students who have had

experience in a preschool program and fourth grade students who have had no experience in a preschool program.

5. There are no significant differences in the reading achievement scores of fifth grade students who have had experience in a preschool program and fifth grade students who have had no experience in a preschool program.

Scope and Delimitations

Students in the Durham County School System, Durham, North Carolina, who were administered the Prescriptive Reading Inventory as first graders in the spring of 1978; the Prescriptive Reading Inventory as second graders in the spring of 1979; the California Achievement Tests as third graders in the spring of 1980; the California Achievement Tests as fourth graders in the spring of 1981; and the California Achievement Tests as fifth graders in the spring of 1982 were used for this study. Preschool experience status was determined from the Student Information Questionnaire which was completed each year by teachers for students involved in the North Carolina Annual Testing Program. Only students with reading scores for all five years and a response of either "yes" or "no" on preschool experience status were included.

The Durham County School System has a cross section of population that is often purported by the superintendent and his staff to be closely representative of that of the entire state. Appendix A presents a comparison of the Durham

County School System with the State of North Carolina on various population and education characteristics. A perusal of these characteristics does in fact reveal that the Durham County School System has a similar composition of population to that of the entire state. Whether looking at the racial make up -- which is almost identical -- or any of the other characteristics, the similarities are striking. Thus, any findings coming out of this study may be applicable to the entire state of North Carolina.

Procedures

The study involved 386 students who were in the first grade in the Durham County School System in 1978. The students were categorized by preschool experience status and followed up through second, third, fourth, and fifth grades. All data were provided by the Durham County School System from their computer tests banks, and analyzed by SAS (Statistical Analysis System).

Statistical Analysis

The t-test for testing the hypothesis that the means of two groups of data are equal was employed. This statistical method enabled the investigator to decide if the scores from students having preschool experience differed significantly from those students having no preschool experience. The formula for the t-test is:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{X}_1 - \bar{X}_2}}$$

where $\bar{X}_1$ is the mean of group 1,

$\bar{X}_2$ is the mean of group 2,

$S_{\bar{X}_1-\bar{X}_2}$ is the standard error of the differences between means.

In order to determine whether observed differences or relationships occurred by chance, a probability at or beyond the ".05 level of significance" was chosen. The test of probability rejects the hypothesis that there is no relationship or difference between two groups on a measure when "p" is less than ".05".

Arrangement of Chapters

Included within this chapter are an introduction to the problem, purposes of the study, the hypothesis to be tested, the scope and delimitations, and the procedures to be followed in compiling and analyzing the data. Chapter II represents related literature on preschool programs and effects upon reading achievement. Chapter III provides an analysis of the reading achievement scores of students with and without preschool experiences. Chapter IV presents the summary, findings, and conclusions inferred from the analysis of the data compiled.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

In this rapidly changing, highly mobile, and technologically advanced world, the nature of the traditional family is undergoing great change. There has been a decline in the extended family--one with a grandparent, uncle, and many other relatives involved in helping rear the child. There is also a lessening of community support for child rearing. Neighbors barely know each other and would never think of getting involved in how neighboring parents are rearing their children.

Child Development During the Preschool Years

Approximately 50% of mothers with preschool children work outside the home.[3] Programs like project Head Start are providing disadvantaged children with out-of-home group experiences. Day care facilities, nursery schools, and other substitute socializing settings for children whose mothers choose to work outside the home are springing up over night.

What are these substitute settings like? There are a wide variety ranging from those offering little more than

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[3]Edward F. Zigler, "Child Care in the 1970s," The Education Digest, XXXVIII (November, 1972), 26.

mere custodial care to those with highly structured instructional programs. Typically, however, all these settings tend to be activity-centered. Children are observed engaging in loosely structured play activities--building blocks and peg board; moderately structured activities--"show and tell," story time, singing, outdoor play, quiet time, art, field trips; and highly structured language and academic skill building activities--sorting, matching, classification, labeling.[4]

Educators such as Bruner, Bloom, and Hunt observe that these preschool years are important in determining the development of basic competencies.[5] These preschool years are a period of rapid development. Bloom estimates that at least one-third of the individual's development at age eighteen has taken place prior to the child's entrance into first grade.[6] Research seems to say that these preschool years are critical for building the foundation for later school learning.

The widespread interest in preschool training has challenged researchers to learn more about the influence of preschooling on academic success in school. Can those who

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[4]Morrow, loc. cit.

[5]Mary L. Smith, The Effect of Preschool Experiences on Achievement in Reading, U. S., Educational Resources Information Center, ERIC Document ED 130 256, 1976.

[6]Gertrude Whipple, "Eliminate Disadvantagement in the Preschool Years," Reading Improvement, XIII (Spring, 1976), 15.

do poorly in school improve their performance with the help of early preschool training? Early intervention programs for children from low-income families were built upon the premise that appropriate services from outside the family could compensate for the disadvantages which, it was believed, were responsible for the generally poor performance of these youngsters in school.[7]

In response to new research insights of Jean Piaget, Benjamin Bloom, and James McVicar Hunt in the field of child development, federally supported children's programs (as an offshoot of the war on poverty) mushroomed in the mid-1960s.[8] In the summer of 1965 the Office of Economic Opportunity initiated Project Head Start,[9] one of the best known early intervention programs for disadvantaged preschoolers. Project Head Start, while essentially educational in focus,[10] had other objectives. It was designed to improve children's intellectual skills, to foster their emotional and social development, to help meet their health and nutritional needs,

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[7] Irving Lazar, "Early Intervention Is Effective," Educational Leadership, XXXVIII (January, 1981), 303.

[8] John A. Calhoun and Raymond C. Collins, "From One Decade to Another: A Positive View of Early Childhood Programs," Theory Into Practice, XX, No. 2 (1981), 135.

[9] Harold D. Love and Sharon Gannaway Stallings, "A Comparison of Children Who Attended Project Head Start Not Having a Follow Through Program and Children Who Attended Project Head Start Having a Follow Through Program," Education, XCI (Summer, 1970), 88.

[10] Lazar, loc. cit.

and to involve parents and the larger community in those purposes.[11]

The Effects of Preschool Programs on Cognitive and Intellectual Development

What do educators and evaluators have to say about preschool programs? Some are critical of the practice from the theoretical point of view. Raymond Hock, professor of education at Drake University, concludes that children who learn to read at age eight instead of five will lose no ground and suggests that too much emphasis on reading and language development at an early age may suppress the creative area of the brain.[12] Others are critical from the practical point of view. Gains made by participation in preschool experiences are elusive. Gains do not last beyond the first year or two of school and then these children gradually drift back toward the performance level of their companions who did not have a preschool experience.[13] While early evaluations of Head Start Programs, i.e., the Westinghouse-Ohio Study, concluded that participation in Head Start experiences produced only marginal effectiveness in cognitive

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[11]Richard B. Darlington, "Preschool Programs and Later School Competence of Children From Low-Income Families," Science, CCVII (April, 1980), 202.

[12]"Dangers of Early Emphasis on Reading," Intellect, CVI (March, 1978), 252.

[13]Shirley G. Moore, "The Effects of Head Start Programs with Different Curricula and Teaching Strategies," Young Children, XXXII (September, 1977), 54.

development,[14] they gave little attention to the areas of health services and social services where Head Start was achieving great successes.[15] By and large the research has been positive, almost always indicating short-term positive effects upon the child's cognitive, language, social, emotional, and physical development.[16] Quite often similar long-term positive effects were also found.

In 1972, Caldwell concluded that the cognitive and intellectual development of young children are not harmed by experiences in a day care environment; in fact, many young children benefit significantly from such exposure.[17] Evidence has been assembled by Lazar suggesting that Head Start has indeed succeeded in increasing the adaptive abilities of young children from poverty backgrounds.[18] Children from low income disadvantaged family backgrounds do seem to profit the most from participation in preschool activities.

Annual evaluations of the Florida Migratory Child

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[14]Ruth C. Moore and Earl J. Ogletree, "A Comparison of the Readiness and Intelligence of First Grade Children With and Without a Full Year of Head Start Training," Education, XCIII (February-March, 1973), 266.

[15]William L. Callison, "Comments and Conjectures: A Smashing Success 'That Has Apparently Failed'," Educational Forum, XXXV (March, 1981), 388.

[16]Calhoun, op. cit., p. 136.

[17]Belsky, loc. cit.

[18]Edward E. Gotts, "The Training of Intelligence as a Component of Early Interventions: Past, Present, and Future," The Journal of Special Education, XV, No. 2 (1981), 258.

Compensatory Program have generated data in 1972 indicating benefits in reading readiness occurred to migrant youngsters who participated in this preschool educational program.[19] A follow-up study of 310 Black male children who at ages 2 or 3 were enrolled in the Harlem Research Center early intervention program, found early intervention had a clear and meaningful effect on the scholastic achievement of both middle and lower class Black boys in the fifth grade.[20] A study in Chicago of 58 disadvantaged children who attended Head Start for a year compared to 134 who had not attended Head Start found significant differences in cognitive development in favor of the Head Start children at the first grade level.[21]

In a Philadelphia study of 3,079 disadvantaged children, 1,975 of whom had experiences in the Get Set Day Care Program operated by the Philadelphia School District, found that children with two years of Get Set experience scored significantly higher on the Metropolitan Achievement Tests than did the children of a control group.[22] The High Scope

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[19] James A. Scruggs and Gerald L. Richardson, "Florida Preschool Programs Benefits To Migrant Children," Phi Delta Kappan, LXIII (May, 1981), 677.

[20] Francis H. Palmer, The Effects of Minimal Early Intervention on Subsequent IQ Scores and Reading Achievement, U. S., Educational Resources Information Center, ERIC Document ED 130 229, 1976.

[21] Moore and Ogletree, loc. cit.

[22] A Longitudinal Study of Get Set Day Care Children in Grades First, Second, and Third, U. S., Educational Resources Information Center, ERIC Document ED 085 114, 1973.

Foundation in Michigan reports in an 18-year follow-up study of 123 poor Black children who entered preschool at ages 3 or 4, that preschool education for poor children pays off in the short run and the long run. In the eighth grade, the preschool group scored a full grade level higher in reading achievement than did a similar group of children who had not attended preschool.[23]

In a 1976 follow-up study of 2,008 children from low income families across the United States--11 urban and rural sites in the northeast, southeast, and midwest--who entered preschool at ages 3 or 4 revealed that preschool has a signigicant effect on intelligence test scores for up to 3 or 4 years after the end of the preschool program.[24] In a study of 208 California children who were involved in preschool programs, Osterlind found a significant relationship between preschool experience and reading achievement in kindergarten.[25]

A follow-up study of 101 New York City children who had attended a year of preschool shows clear evidence that those children who had day care preschooling have a higher

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[23]"Preschool Helps Poor Children Succeed, High Scope Claims After 18-Year Project," Phi Delta Kappan, LXIII (February, 1981), 463.

[24]Richard B. Darlington, Lasting Effects After Preschool, U. S., Educational Resources Information Center, ERIC Document ED 190 214, 1980.

[25]Steven J. Osterlind, "Preschool Impact on Children: It's Sustaining Effects Into Kindergarten," Educational Research Quarterly, V (Winter, 1980-81), 28.

proportion of successful students in the third grade than their grademates who had no preschooling. The average reading scores of day care graduates were 2 months higher than their grademates.[26] Nieman and Gastright, in an eight-year follow-up study compared mean scores of the treatment group of 410 former preschool and all-day kindergarten children with those of 141 half-day kindergarten students. Data revealed that the treatment group was significantly higher on both reading and math at the end of both the fourth and the eighth grades.[27]

Turner and Deford, in a follow-up study of the Early Childhood Education Project in Richmond, Virginia, show evidence that the longer the duration of the preschool educational experience, the higher the scores on the Metropolitan Achievement Tests in the first grade. Results of both standardized tests and teacher ratings indicate that preschool experiences improve academic readiness and performance.[28] Hiebert in a study of 60 middle class children ages 3 to 5 in a preschool program in Madison, Wisconsin, found that

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[26]Max Wolff and Annie Stein, Long-Range Effect of Preschooling on Reading Achievement, U. S., Educational Resources Information Center, ERIC Document ED 015 027, 1966.

[27]Ronald H. Nieman and Joseph F. Gastright, The Long Term Effects of ESEA Title I Preschool and All Day Kindergarten: An Eight Year Follow-up Study. U. S., Educational Resources Information Center, ERIC Document ED 198 949, 1981.

[28]Robert V. Turner and Edward F. Deford, Follow-up Study of Pupils with Differing Preschool Experiences, U. S., Educational Resources Information Center, ERIC Document ED 042 810, 1970.

knowledge of print awareness increased significantly from the beginning to the end of the preschool period. She also found that gains made from age three to age four were significantly greater than the gains made from age four to age five.[29] This suggests that the early part of preschool is a particularly active time for print-related learning.

Rogers and Wheeler, in a study of teacher's perceptions in selected schools in the United Kingdom, found very similar positive results. The teachers perceived that the attendance at preschool was beneficial in the areas of language and socialization skills, and certainly did no harm in other areas. Eighty-two percent of the teachers saw language development enhanced and 87% saw communication skills improved. A surprising finding of this study was a high correlation between length of teaching experience and degree of positive attitude toward preschool.[30]

Summary

The positive effects of preschool educational experiences on later achievement in school are well supported in the research literature. Preschooling appears to have some

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[29]Elfrieda H. Hiebert, "Developmental Patterns and Interrelationships of Preschool Children's Print Awareness," Reading Research Quarterly, XVI, No. 2 (1981), 254.

[30]Sinclair Rogers and T. J. Wheeler, A Study of the Views of Teachers of First Year School Children Concerning the Effects on Language and Socialization of Children Who Have Previously Attended Playgroups, U. S., Educational Resources Information Center, ERIC Document ED 128 074, 1976.

significant effects upon achievement at the first and second grade levels. Even though many studies have found a tapering off of these effects at the third grade level, other studies have shown significant effects at the eighth grade level and beyond. The length of the preschool experience seems to be a factor, particularly in producing lasting effects. The longer the period of preschool experience, the more effective it seems to be. Disadvantaged students from families with low incomes seem to profit greatest by these preschool educational experiences.

CHAPTER III

AN ANALYSIS OF THE DATA WITH REGARD TO READING ACHIEVEMENT SCORES

The purposes of this study were as follows: 1) to ascertain whether there were significant differences with respect to reading achievement scores within first grade children who have and who have not had preschool group experiences, and 2) to follow up these first grade children through grade five to determine if any significant differences are retained, or occur later, as the children progress through school. Ultimately, this data should prove valuable in helping professionals in the field of education explore the practical implications of the long-term effects of preschool educational intervention. All of the years of a developing child are magic periods. One has to read nothing but Piaget to appreciate the stage-like progression which takes place in social as well as cognitive development. In educating the total child, concerted efforts are needed from birth through at least high school. Educators have got to be concerned about a block of time in a child's life from zero to five. These are important years, years of great change.

Hypotheses

Data for each of five years were analyzed and the following hypotheses were tested:

1. There are no significant differences in the reading achievement scores of first grade students who have had experience in a preschool program and first grade students who have had no experience in a preschool program.

2. There are no significant differences in the reading achievement scores of second grade students who have had experience in a preschool program and second grade students who have had no experience in a preschool program.

3. There are no significant differences in the reading achievement scores of third grade students who have had experience in a preschool program and third grade students who have had no experience in a preschool program.

4. There are no significant differences in the reading achievement scores of fourth grade students who have had experience in a preschool program and fourth grade students who have had no experience in a preschool program.

5. There are no significant differences in the reading achievement scores of fifth grade students who have had experience in a preschool program and fifth grade students who have had no experience in a preschool program.

Procedure for Collecting Data

In order to test the five hypotheses, data were extracted from the Durham County Schools computer test banks. First grade students with a reading score on the Prescriptive Reading Inventory administered in the spring of 1978 and a response of either "yes" or "no" for preschool status on their Student

Information Questionnaire were initially selected. Student identification numbers, which are assigned to all students in the Durham County School System, were used to extract these same student's reading scores for second grade (the Prescriptive Reading Inventory administered in the spring of 1979); third grade (the California Achievement Tests administered in the spring of 1980); fourth grade (the California Achievement Tests administered in the spring of 1981); and fifth grade (the California Achievement Tests administered in the spring of 1982) from the computer test banks. Only students with scores for all five years and a response of either "yes" or "no" on preschool status were included.

Analysis of Demographic Data

A total of 386 students, 170 boys and 216 girls, were found to have, in the computer banks, all the information necessary to be included in this study. Of this group 25% (101 - 41 boys and 60 girls) were identified as non-white and 74% (285 - 129 boys and 156 girls) were identified as white.

With respect to preschool status, 34% (131 - 55 boys and 76 girls) were indicated to have had experience in a preschool program; while 66% (255 - 115 boys and 140 girls) were indicated to have had no experience in a preschool program.

Analysis of Data

The purpose of this section is to analyze the five comparisons made in this investigation. In this analysis,

comparisons were made on the basis of preschool experience status for reading achievement scores at each of five grade levels.

Table 1 presents an "Analysis of Reading Scores Between Students With Preschool Experience and Students Without Preschool Experience For Grades 1-5." While there was no significant difference found in reading between the preschool and the non-preschool group in the first grade; significant differences at the .05 level in the second grade, at the .01 level in the third grade, and at the .001 level in both the fourth and the fifth grades were found.

Summary

The purpose of this chapter was to present the findings of an investigation of five comparisons made on the basis of preschool experience status for reading achievement. The results, as applied to the five hypotheses that were tested, are the subject of the following discussion.

In testing the first hypothesis, that there is no significant difference in the first grade reading achievement scores between students who have had experience in a preschool program and students who have had no experience in a preschool program, the hypothesis was accepted. No significant difference was found.

In testing the second hypothesis, that there is no significant difference in the second grade reading achievement scores between students who have had experience in a

Table 1

Analysis of Reading Scores Between Students With Preschool Experience and Students Without Preschool Experience for Grades 1-5

Groups	N	$\bar{X}$	t	df	Prob>/t/
First Grade					
1. Preschool	131	50.60			
2. No Preschool	255	59.76	1.15	384	NS
Second Grade					
1. Preschool	131	114.68			
2. No Preschool	255	112.56	2.01	384	.05
Third Grade					
1. Preschool	131	63.49			
2. No Preschool	255	60.65	2.65	384	.01
Fourth Grade					
1. Preschool	131	54.79			
2. No Preschool	255	49.83	3.52	384	.001
Fifth Grade					
1. Preschool	131	55.86			
2. No Preschool	255	51.54	3.37	384	.001

preschool program and students who have had no experience in a preschool program, the results revealed a difference that was significant at the .05 level. Thus, the hypothesis was refuted by second grade students.

In testing the third hypothesis, that there is no significant difference in the third grade reading achievement scores between students who have had experience in a preschool program and students who have had no experience in a preschool program, the results revealed a difference that was significant at the .01 level. Thus, the hypothesis was refuted by third grade students.

In testing the fourth hypothesis, that there is no significant difference in the fourth grade reading achievement scores between students who have had experience in a preschool program and students who have had no experience in a preschool program, the results revealed a difference that was significant at the .001 level. Thus, the hypothesis was refuted by fourth grade students.

In testing the fifth hypothesis, that there is no significant difference in the fifth grade reading achievement scores between students who have had experience in a preschool program and students who have had no experience in a preschool program, the results revealed a difference that was significant at the .001 level. Thus, the hypothesis was refuted by fifth grade students.

CHAPTER IV

SUMMARY

This study had two basic purposes. The first objective was to ascertain whether there were significant differences with respect to reading achievement scores between first grade children who have had and who have not had preschool group experiences. The second purpose was to follow up these first grade children through grade five to determine if any significant differences are retained, or occur later, as these children progress through school.

The study involved 386 students who were in the first grade in the Durham County School System in school year 1977-78. These students were categorized by preschool experience status and followed up through fifth grade. All data were extracted from the Durham County Schools computer test banks. The source for preschool status was the Student Information Questionnaire which is completed each year by teachers for children involved in the North Carolina Annual Testing Program. The reading scores for first and second grades were from the Prescriptive Reading Inventory which was administered in the spring of each year. Reading scores for the third, fourth, and fifth grades were from the California Achievement Tests which were also administered in the spring of each year.

All data were analyzed by SAS (Statistical Analysis System) in the fall of 1982. The t-test analysis (for uncorrelated samples) was employed to measure the difference between specified groups on reading achievement acores. This statistical method enabled the investigator to decide whether the scores for the preschool group differed significantly from the scores for the non-preschool group.

Findings

The analysis of the data collected warranted the findings which follow:

When the first hypothesis -- "There are no significant differences in the reading achievement scores of first grade students who have had experience in a preschool program and first grade students who have had no experience in a preschool program" -- was tested, no significant difference was found. The hypothesis was accepted.

When the second hypothesis -- "There are no significant differences in the reading achievement scores of second grade students who have had experience in a preschool program and second grade students who have had no experience in a preschool program" -- was tested, there was a difference, significant at the .05 level, found. The hypothesis was refuted by second grade students.

When the third hypothesis -- "There are no significant differences in the reading achievement scores of third grade students who have had experience in a preschool program

and third grade students who have had no experience in a preschool program" -- was tested, there was a difference, significant at the .01 level, found. The hypothesis was refuted by third grade students.

When the fourth hypothesis -- "There are no significant differences in the reading achievement scores of fourth grade students who have had experience in a preschool program and fourth grade students who have had no experience in a preschool program" -- was tested, a difference significant at the .001 level was found. The hypothesis was refuted by fourth grade students.

When the fifth hypothesis -- "There are no significant differences in the reading achievement scores of fifth grade students who have had experience in a preschool program and fifth grade students who have had no experience in a preschool program" -- was tested, a difference significant at the .001 level was found. The hypothesis was refuted by fifth grade students.

Conclusions and Recommendations

In the five comparisons made, the groups which have/have not absorbed the greatest impact from preschool experiences, as far as this one study can ascertain through concrete data, can be established. They include:

1. Students with and students without preschool group experiences tended not to differ significantly on reading achievement in the first grade.

2. Comparisons between students with and students without preschool group experiences tended to favor the preschool group on reading achievement in the second, third, fourth, and fifth grades.

3. Since the differences grew more significant as the grade levels increased, there appears to be a "sleeper" effect that shows up gradually as a child progresses through school, a finding little expected from the research of the literature.

Since interest in the effects of preschool experiences on later school achievement has not received much attention by researchers, particularly in North Carolina, there are many areas in which knowledge is needed. Based on this lack of real knowledge, and because of the significant findings of this investigation, it is recommended that the following projects be undertaken to discover additional facts concerning the effects of preschool experiences upon school-age children.

1. Similar studies to this one just completed by the researcher needed to be replicated throughout North Carolina.

2. Besides reading achievement, studies of the effects of preschool experiences upon achievement in mathematics, science, and other areas should be instituted.

3. Longitudinal studies of the long-term lasting effects of preschool experiences through grade 8 and possibly through high school need to be launched.

4. The interactions of sex, race, and socio-economic status with preschool experiences should be researched.

5. Much of the research to date has dealt with disadvantaged children. In light of the education profession's responsibility for educating all children, studies should be done on the other segments of the population.

SELECTED BIBLIOGRAPHY

A Longitudinal Study of Get Set Day Care Children in Grades First, Second, and Third. U. S., Educational Resources Information Center, ERIC Document ED 085 114, 1973.

Belsky, Jay and Laurence D. Steinberg. "What Does Research Teach Us About Day Care: A Followup Report." Children Today, (July-August, 1979), 21-26.

Bronfenbrenner, Urie. "Is Early Intervention Effective?" The Education Digest, XL (February, 1975), 17-20.

Calhoun, John A. and Raymond C. Collins. "From One Decade to Another: A Positive View of Early Childhood Programs." Theory Into Practice, XX, No. 2 (1981), 135-40.

Callison, William L. "Comments and Conjectures: A Smashing Success 'That Has Apparently Failed'." Educational Forum, XXXV (March, 1981), 387-8.

"Dangers of Early Emphasis on Reading." Intellect, CVI (March, 1978), 352.

Darlington, Richard B. Lasting Effects After Preschool. U. S., Educational Resources Information Center, ERIC Document 190 214, 1980.

_____. "Preschool Programs and Later School Competence of Children From Low Income Families." Science, CCVIII (April, 1980), 202-4.

Durkin, Dolores. "A Language Arts Program for Pre-First-Grade Children: Two-Year Achievement Report." Reading Research Quarterly, V, No. 4 (1970), 534-68.

Gotts, Edward E. "The Training of Intelligence as a Component of Early Interventions: Past, Present, and Future." The Journal of Special Education, XV, No. 2 (1981), 257-68.

Hiebert, Elfrieda H. "Developmental Patterns and Interrelationships of Preschool Children's Print Awareness." Reading Research Quarterly, XVI, No. 2 (1981), 236-60.

Hodges, Walter, and Mark Cooper. "Head Start and Follow Through: Influences on Intellectual Development." The Journal of Special Education, XV, No. 2, (1981), 221-38.

Larson, Janet J. Yes, Head Start Improves Reading. U. S., Educational Resources Information Center, ERIC Document ED 079 693, 1972.

Lazar, Irving. "Early Intervention Is Effective." Educational Leadership, XXXVIII (January, 1981), 303-5.

Love, Harold D., and Sharon Gannaway Stallings. "A Comparison of Children Who Attended Project Head Start Not Having a Follow Through Program and Children Who Attended Project Head Start Having a Follow Through Program." Education, XCI (Summer, 1970), 88-91.

Moore, Ruth C. and Earl J. Ogletree. "A Comparison of The Readiness and Intelligence of First Grade Children With and Without a Full Year of Head Start Training." Education, XCIII (February-March, 1973), 266-70.

Moore, Shirley G. "The Effects of Head Start Programs with Different Curricula and Teaching Strategies." Young Children, XXXII (September, 1977), 54-61.

_____. "The Persistence of Preschool Effects: A National Collaborative Study." Young Children, XXXIII (March, 1978), 65-71.

Morrow, Robert D. and Hugh J. McBride. Relationship of Preschool Academic Skill Deficits to Subsequent Acquisition of Reading and Mathematics Skills. U. S., Educational Resources Information Center, ERIC Document ED 149 864, 1977.

Naron, Nancy K. "The Need for Full-Day Kindergarten." Educational Leadership, XXXVIII (January, 1981), 306-9.

Nieman, Ronald H., and Joseph F. Gastright. The Long Term Effects of ESEA Title I Preschool and All Day Kindergarten: An Eight Year Follow-up Study. U. S., Educational Resources Information Center, ERIC Document ED 198 949, 1981.

Osterlind, Steven J. "Preschool Impact on Children: Its Sustaining Effects Into Kindergarten." Educational Research Quarterly, V (Winter, 1980-81), 21-30.

Palmer, Francis H. The Effects of Minimal Early Intervention on Subsequent IQ Scores and Reading Achievement. U. S., Educational Resources Information Center, ERIC Document ED 130 229, 1976.

"Preschool Helps Poor Children Succeed, High Scope Claims After 18-Year Project." Phi Delta Kappan, LXII (February, 1981), 463.

Roberts, Christine Laconte. An Investigation of the Influence of Preschool Programs on Children's Reading Progress: A Review of Model Programs With Implications for the Future. U. S., Educational Resources Information Center, ERIC Document ED 142 993, 1976.

Rogers, Sinclair, and T. J. Wheeler. A Study of the Views of Teachers of First Year School Children Concerning the Effects on the Language and Socialization of Children Who Have Previously Attended Playgroups. U. S., Educational Resources Information Center, ERIC Document ED 128 074, 1976.

Scott, Ralph. "Home Start: Third-Grade Follow-up Assessment of a Family-Centered Preschool Enrichment Program." Psychology in the Schools, XIII, No. 4 (October, 1976), 435-8.

Scruggs, James A., and Gerald L. Richardson. "Florida Preschool Program Benefits Migrant Children." Phi Delta Kappan, LXIII (May, 1981), 677.

Smith, Mary L. The Effect of Preschool Experiences on Achievement in Reading. U. S., Educational Resources Information Center, ERIC Document ED 130 256, 1976.

Turner, Robert V., and Edward F. DeFord. Follow-up Study of Pupils With Differing Preschool Experiences. U. S., Educational Resources Information Center, ERIC Document ED 042 810, 1970.

Whipple, Gertrude. "Eliminate Disadvantagement in the Preschool Years." Reading Improvement, XIII (Spring, 1976), 15-19.

Wolff, Max, and Annie Stein. Long-Range Effect of Pre-Schooling on Reading Achievement. U. S., Educational Resources Information Center, ERIC Document ED 015 027, 1966.

Zigler, Edward F. "Child Care in the 1970s." The Education Digest, XXSVIII (November, 1972), 24-7.

APPENDIX A

Table 1. Comparison of the Durham County School System With North Carolina on Selected Characteristics of the Population

Characteristic	Durham County School System	North Carolina
1. Percent of pupils enrolled in public school by ethnic origin, fall 1981:		
White	69%	68%
Black	29%	30%
Other	1%	2%
2. Percent of current expenditures for education by source of funds, 1980-81: State	60%	64%
Federal	8%	13%
Local	33%	23%
3. Percent of public school professional personnel by degree held, 1981-82: Bachelors	60%	66%
Masters	37%	29%
Other	4%	5%
4. Percent of eleventh graders passing the North Carolina Competency Test, 1980:		
Reading	95.2%	92.5%
Math	91.4%	89.4%
5. Percent of families by income level, 1969:		
Below $5,000	23%	22%
$5,000 - $9,999	36%	36%
$10,000 - $24,999	37%	38%
$25,000 and above	4%	4%

Sources:

Items 1 - 4: Statistical Profile, North Carolina Public Schools, North Carolina State Board of Education, Controller's Office, Division of Statistic Services, Raleigh, North Carolina, May 1981 and May 1982.

Item 5: General Social and Economic Characteristics North Carolina, 1970 Census of Population, U. S. Department of Commerce, Bureau of the Census, U. S. Government Printing Office, Washington, D. C., April 1972. (Note: School System data includes entire county of Durham.)

APPENDIX B

Route One, Box 196
Zebulon, North Carolina 27597
April 5, 1982

Dr. Alex Epanchin, Director
Psychological Services
Durham County Schools
Post Office Box 2823
Durham, North Carolina 27702

Dear Alex:

Thanks for allowing me time to talk with you last week concerning the use of Durham County's test data in my research project.

My research project proposal has already received approval from the graduate council at North Carolina Central University. Attached is an outline of my plans for use of Durham County's test data. I plan to use the County's entire 1978 first grade class and to follow up these students each year through fifth grade. The key information needed is:

- student identification numbers for matching across years
- data on preschool experience
- reading scores for each of the five years

I will make no further use of the data than what is required for my research project. Furthermore, as I will see no student names, there should be no problem of confidentiality of data.

I am looking forward to hearing from you soon on the status of this request. Feel free to call me at 733-2880 or 269-8877.

Sincerely yours,

Charles W. Creech

Charles W. Creech

CWC/cc

Attachment

Collection and Analysis of Data

Students in the Durham County School System who were administered the Prescriptive Reading Inventory as first graders in the spring of 1978; the Prescriptive Reading Inventory as second graders in the spring of 1979; the California Achievement Tests as third graders in the spring of 1980; the California Achievement Tests as fourth graders in the spring of 1981; and the California Achievement Tests as fifth graders in the spring of 1982 will be used for this study. Preschool experience will be determined from the Student Information Questionnaire which was completed each year by teachers for students involved in the North Carolina Annual Testing Program. Only students with reading scores for all five years and a response of either "yes" or "no" on preschool experience status will be included.

The students will be categorized by preschool experience status and followed up through second, third, fourth, and fifth grades. The t-test for testing the hypothesis that the means of two groups of data are equal will be employed. This statistical method will enable the investigator to decide whether scores for students having preschool experience differed significantly from those for students having no preschool experience.

Durham County Schools
P. O. Box 3823
Durham, North Carolina 27702

OFFICE OF THE
SUPERINTENDENT

April 19, 1982

Mr. Charles W. Creech
Route 1, Box 196
Zebulon, North Carolina 27597

Dear Mr. Creech:

This letter is to inform you that your proposal to utilize Durham County Schools achievement test data to study the relationship between prekindergarten experiences and reading achievement as the 1978 first graders progress through fifth grade has received administrative support.

I have asked Alex Epanchin to get in touch with you and to work with you.

We will be interested in the results of your analysis. We wish you well in your studies.

Sincerely yours,

Joyce S. Wasdell

Joyce S. Wasdell, Assistant Superintendent

cc: Dr. Alex Epanchin

BIOGRAPHY

Charles Waddell Creech was born July 24, 1944, in Johnston County, North Carolina. He graduated from Corinth-Holders High School, Zebulon, North Carolina, in 1962.

He was awarded a Bachelor of Science in Business Administration degree from East Carolina University at Greenville, North Carolina, in 1966. He was awarded a Certificate of Achievement for completion of a one-year computer programming course from Electronic Computer Programming Institute, Raleigh, North Carolina, in 1970.

Mr. Creech's professional employment experiences include: 3 years as a classroom teacher of business education in the Johnston County School System, Four Oaks, North Carolina; 8 years as a research analyst with the Occupational Research Unit, Division of Research, North Carolina Department of Public Instruction, Raleigh, North Carolina; and 2 years as an educational research and testing specialist with the Central Regional Education Center, North Carolina Department of Public Instruction, Knightdale, North Carolina.

In 1981 he was employed as a computer systems analyst with the Management Information Division of the North Carolina Department of Administration, Raleigh, North Carolina.

He began his graduate work in the Department of Education at North Carolina Central University in 1979.